

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT

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SUBJECT

Hyperbolic Navigation Development at MIT REFERENCE NO. OF PAGES
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**SUPPLEMENT TO
REPORT NO.**

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- i. In late September 1951 the East German Ministry for Post and Telecommunications ordered [REDACTED] Koepenick to start development of hyperbolic navigation. This project was given plan number V2-02 and was to be [REDACTED] in 1952. Chief Engineer Erich Huettmann, under the overall supervision of Development Chief Bernhard Vinzelberg, [REDACTED] was put in charge of the project. The 1952 form sheet of the Economic Plan characterizes the project as [REDACTED] word (Kennwort) "Hyperbelnavigationsverfahren" as [REDACTED] which is scheduled to permit position finding for a [REDACTED] over long distances [REDACTED] meters. The frequency range is from 90 to 100 MHz. The system consists of [REDACTED] and [REDACTED] construction elements, radio transmitters, reformers, throttles, etc. A total of 6,000 DME was provided for on the [REDACTED] were 50,000 DME. Development was to be completed by the fourth quarter 1954.

ii. During 1952 many difficulties arose in trying to carry out the project. Work was mainly confined to the study of available literature. The technicians of Funkwerk Koepenick did not obtain the expected support of the Main Administration for Wireless Telecommunications (HVV Funk) in the procurement of material; direction of the development was changed several times. At the end of 1952 the project was reviewed and put under the overall supervision of Wilhelm Grimm, with Guenther Hintze as the responsible director of the project. The form sheet for the 1953 Economic Plan gives the following data:

Theme: Long-distance navigation or position finding

Key word: Weitnavigationsverfahren

Technical characteristics: Instruments are to permit ships and airmen to determine their positions over distances

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cannot be given at present because
 [REDACTED] not been made as to
 [REDACTED] CCA) to be used.

Co-ordination:

Provisional co-ordination with the
 Ministry for Post and Telecommunications.
 Necessity of project has been confirmed.

Finance Source:

Central Research and Development Funds.

Costs:

Total costs amount to 450,000 DME,
 including the 1952 share of 50,000 DME.
 In 1953 a total of 156,000 DME is to be
 spent (material costs: 17,300 DME;
 fabrication costs: 96,600 DME; special
 costs such as personnel: 7,100 DME;
 purchase of [REDACTED] parts: 35,000 DME).

Completion Date:

Deferred to fourth quarter 1953.

1953 work schedule:

Preparatory work and laboratory development. The Technical-Scientific Work accompanying the 1953 work schedule:
 [REDACTED]
 [REDACTED] investigation [REDACTED]
 obtain [REDACTED] testing
 use for navigation
 air [REDACTED] introduction of the
 in [REDACTED] many is necessary to
 catch up with foreign nations.

3. During 1953 the project met with new difficulties. It was changed from a development project to a research project. Progress made from January through 30 August 1953 is given in the following extracts of monthly progress reports of Department TEE of Funkwerk Koepenick:

a. January 1953

Fegert (fnu), who had been in charge of the project, left the firm at the end of 1952. His work was not particularly successful. Some ideas which were advanced had to be abandoned because it was impossible to attain the required accuracy of location (Ortungsgenauigkeit) by circumventing DECCA patents with the aid of a frame direction finder (an [REDACTED] decided to abandon [REDACTED]

[REDACTED]
 ped in such a way that measurement of the existing DECCA chains would be possible. It remained whether this could be done. In mid-January, a conference was to take place with Dr. Vinzelberg, Jung, Dr. Schuetzleffel, Hentze and Grimm in order to work out the position of Funkwerk Koepenick vis-a-vis the Main Administration for Wireless Telecommunications.

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This was to permit small craft having no special equipment other than a regular communications radio receiver to find their position.

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b. February 1953

The status did not change, since no technician in charge (Sachbearbeiter) was available. The conference which was to establish Funkwerk Koepenick's position (see above) did not take place.

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c. March 1953

After a conference with the Hydrographic Service (Geohydrographischer Dienst) it was decided to start development of a receiver instrument without taking into consideration existing East German transmitters. This would make it possible to become acquainted with the problems under study and to obtain practical experience. Thus, a functional reconstruction (funktionsmaessiger Nachbau) of the receiver elements of the DECCA systems in existence was to be attempted. The switching diagram (Schaltbild) was to be reconstructed in accordance with the functioning.

d. April 1953

Funkwerk Koepenick requested the Main Administration for Wireless Stations, turn over all available material on the DECCA system. The principle of the way in which an accurate position-finding procedure (Feinortung) works has in the meantime been cleared up to such an extent that Funkwerk Koepenick can consider proceeding with the construction of the wiring (Schaltungsmässiger Aufbau). However, the principle of the procedure for rough position-finding (Groborbung) had not been cleared up. It was planned to carry out measurements bearing on the DECCA chain.

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e. July 1953

Hintze, who was in charge of hyperbolic navigation, was on leave. A detailed report was to be made during August 1953. The intermediate frequency amplifier had been built. The receiver for the master transmitter (Muttersender) was being modified. The amplifying part (Verstärkerteil) had been completed. Work was concentrated on the discriminator. This would then permit Funkwerk Koepenick to carry out accurate measurements.

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f. 30 August 1953

The development project [redacted] hyperbolic navigation system [redacted] extended into 1954. The provisory initial report had to be changed [redacted]. The development proposition contained in it was to be put forth as a research proposition for next year. Work was progressing on the sub-order on the development of decometers issued to ZEG. Some types of rotating indicators (Drehmelder) had been investigated for their usability. The degree of accuracy attained was about 20 percent. This value appeared to be usable. However, the great power demand (Leistungsbedarf) of about 10 watts for each of the two deviation coils (Ablenkspulen) of the system continued to be very disadvantageous. Grimm advanced the proposition that [redacted] possibly finding a less expensive [redacted] Empfangreicher Aufbau der D.

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Comment. As received. Probably Drehstrom (three-phase alternating current) was meant.

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